

## **EXHIBIT A**

## CURRICULUM VITAE

### IRA STEPHEN COHEN

**Address:** (Home) 23 Hawks Nest Road, Stony Brook, New York 11790  
(Office) Department of Physiology & Biophysics, 8661 SUNY,  
Stony Brook, NY 11794-8661

**Birthdate:** July 6, 1948

**Marital Status:** Married, two children

### HIGHER EDUCATION:

- 1965-1969. Columbia University, B.A., Chemistry (Chemical-Physics)
- 1969-1974. N.Y.U. School of Medicine, M.D., Medicine
- 1970-1974. N.Y.U. Graduate School, Ph.D., Physiology & Biophysics
- 6/74-9/74. Woods Hole (MBL), Postdoctoral, Neurobiology  
(Grass Foundation Neurophysiology Fellow)
- 1974-1976. University Laboratory of Physiology, Oxford, Postdoctoral,  
cardiac electrophysiology (Postdoctoral Research Fellow, supported by MDA)

### FACULTY POSITIONS:

- 1976-1981. Assistant Professor, Physiology & Biophysics,  
SUNY at Stony Brook
- 1981-1987. Associate Professor, Physiology & Biophysics,  
SUNY at Stony Brook
- 1984-1989. Adjunct Associate Professor, Pharmacology,  
Columbia University

- 1987- 2001 Professor, Physiology & Biophysics,  
SUNY at Stony Brook
- 1989- Adjunct Professor, Pharmacology, Columbia University
- 1989- 2005 Professor of Medicine, SUNY at Stony Brook
- 1997- Director, Institute of Molecular Cardiology, SUNY at Stony Brook
- 2001- Leading Professor of Physiology & Biophysics  
SUNY at Stony Brook

#### **CURRENT RESEARCH ACTIVITIES:**

- 1977-2005. Cardiac Electrophysiology Effects of Ions and Drugs-  
P.I. Funded by National Heart, Lung and Blood Institute.
- 1983-2009. Developmental Cardiac Electrophysiology- P.I. of one  
project in program project grant entitled "Regional and Species Regulation  
of Pacemaker Current".  
Funded by National Heart, Lung and Blood Institute.
- 2001-2011. Memory, Remodeling, and Ventricular Arrhythmias.  
P.I. of subcontract. Funded by National Heart, Lung and Blood Institute.
- 2001-2007. Development and Implantation of a Biological Pacemaker.  
P.I. of sub contract. Support by Guidant, Inc.
- 2004-2009. Genes, Stem Cells and Biological Pacemakers.  
P. I. of contract. Support by Guidant, Inc.

#### **HONORS:**

- 1970-1974. Medical Scientist Training Fellow (M.D.-Ph.D. Program), NYU
1974. Grass Foundation Fellowship, Neurobiology, Woods Hole
- 1974-1976. MDA Post-doctoral Fellowship
- 1978-1983. Research Career Development Award, NHLBI

- 1990-2000 NHLBI Merit Award
2004. Excellence in the Pursuit of Knowledge Award, Research Foundation of SUNY

**EDITORIAL BOARDS:**

- 1990-1995 American Journal of Physiology (Cell)
- 1991-1995 Physiological Reviews
- 1993- Journal of General Physiology
- 1999-2006 Journal of Physiology

**MEMBERSHIPS IN SCIENTIFIC SOCIETIES:**

- The Biophysical Society
- The Physiological Society (England)
- The Harvey Society
- The Society of General Physiologists
- The American Physiological Society
- The American Heart Association

**SERVICE ON PEER REVIEW PANELS:**

1983. Site visit to Duke University for Physiology Study Section
1983. Site visit to Albert Einstein for NHLBI
1983. Physiology Study Section
- 1983-1985. Member New York State Heart Assn. Peer Review Panel
1984. Site visit to Emory for NHLBI

1986.       Cardiovascular and Pulmonary Study Section (CVA)
- 1987-1991. Member of Physiology Study Section
1989.       Site visit to UCLA, Dept. of Physiology, for University evaluation of graduate education
- 1992-1993. New York City Heart Association Peer Review Panel
1993.       Site visit for NHLBI on PPG submitted by H. Criss Hartzell
- 2003-       NY Academy of Medicine Glorney Riesbeck Fellowship Selection Committee

**PAST AND PRESENT SERVICE ON INSTITUTIONAL AND UNIVERSITY WIDE COMMITTEES:**

Curriculum Committee

Appointments, Promotions and Tenure Committee

Academic Standing Committee

Laboratory Animal Users Committee

Steering Committee for Pharmacological Sciences

Sponsored Programs Advisory Committee of SUNY

**TEACHING RESPONSIBILITIES:**

Cardiac Electrophysiology and Pharmacology: To first and second year medical students

Excitable Membranes: To graduate students

## **NATIONAL & INTERNATIONAL MEETINGS:**

- 2002. FASEB Symposium speaker, New Orleans, Louisiana.
- 2002. American Heart Association Symposium speaker, Chicago, Illinois.
- 2004. Invited speaker, Oklahoma Heart Institute, Continuing Education for Cardiologists, Las Vegas, Nevada.
- 2004. Invited speaker, Cardiostim, Nice, France.
- 2004. Invited speaker, Pan Guidant Biologics Board meeting, New Orleans, Louisiana.
- 2005. Invited speaker, Gordon Conference on Arrhythmias, Santa Ynez, California.
- 2005. Invited speaker, Current Concepts in Cardiovascular Medicine, London, England.
- 2005. Invited speaker, Mammalian Myocardium meeting, Bristol, England.
- 2005. Invited speaker, European Working Group on Cardiac Electrophysiology, Antwerp, Belgium.
- 2006. Invited speaker, Biodesign New Arrhythmia Technology retreat, Stanford, CA.
- 2006. Invited speaker, Cardiostim, Nice, France.
- 2006. Invited speaker, Dennison Young Memorial Symposium, Northeast Pediatric Cardiology Association, New York, NY.
- 2007. Invited speaker, 28<sup>th</sup> Annual Scientific Sessions of Heart Rhythm Society, Denver, Colorado.
- 2007. Invited speaker, 3<sup>rd</sup> International Conference on Cell Therapy for Cardiovascular Disease, New York, NY.
- 2007. Invited speaker, International Society for Computerized Electrocardiology, Cancun Mexico.
- 2008. Invited speaker, The SCAI Annual Scientific Sessions in Partnership with ACCi2 Summit, Chicago, Illinois.
- 2008. Invited speaker, Cardiostim 16<sup>th</sup> World Congress in Cardiac Electrophysiology and Cardiac Techniques, Nice, France.

**Ph.D. STUDENTS SUPERVISED:**

Robin Falk  
Nancy Mulrine  
Anu Shah  
Carlos Oliva  
Jianmin Cui  
Fang Chang  
Hangang Yu  
Jiying Wu  
Damon Kelly  
Victor Tselentakis  
Adam Schultdt (M.D., Ph.D.)  
Amy Rosen (M.D., Ph.D.)

**Ph.D. STUDENTS CURRENT:**

Ling Li

**POST DOCTORAL SUPERVISION:**

Richard Kline  
Jianmin Cui  
Hangang Yu  
Fang Chang  
Nicholas Datyner  
Gary Gintant  
Sarita Yeola  
Jiying Wu  
Irina Potapova  
Sergey Doronin  
Damon Kelly  
Zhongju Lu  
Jia Lu

**PATENTS AND PATENT APPLICATIONS:**

APPLICATION NO.	TITLE
11/240,948 (U.S.)	USE OF HUMAN STEM CELLS AND/OR FACTORS THEY PRODUCE TO PROMOTE MAMMALIAN CARDIC REPAIR THROUGH CARDIOMYOCYTE CELL DIVISION
11/296,018 (U.S.)	USE OF HUMAN STEM CELLS AND/OR FACTORS THEY PRODUCE TO PROMOTE MAMMALIAN CARDIC REPAIR THROUGH CARDIOMYOCYTE CELL DIVISION

05825074.7 (European)	USE OF HUMAN STEM CELLS AND/OR FACTORS THEY PRODUCE TO PROMOTE MAMMALIAN CARDIC REPAIR THROUGH CARDIOMYOCYTE CELL DIVISION
11/227,533 (U.S.)	DIFFERENTIATION OF HUMAN MESENCHYMAL STEM CELLS TO CARDIAC PROGENITOR CELLS THAT PROMOTE CARDIAC REPAIR
05812162.5 (European)	DIFFERENTIATION OF HUMAN MESENCHYMAL STEM CELLS TO CARDIAC PROGENITOR CELLS THAT PROMOTE CARDIAC REPAIR
10/34,506 (U.S.)	MESENCHYMAL STEM CELLS AS A VEHICLE FOR ION CHANNEL TRANSFER IN SYNCYTIAL STRUCTRES
10/757,827 (U.S.)	MESENCHYMAL STEM CELLS AS A VEHICLE FOR ION CHANNEL TRANSFER IN SYNCYTIAL STRUCTRES
04702196.9 (European)	MESENCHYMAL STEM CELLS AS A VEHICLE FOR ION CHANNEL TRANSFER IN SYNCYTIAL STRUCTRES
2006-500957 (Japan)	MESENCHYMAL STEM CELLS AS A VEHICLE FOR ION CHANNEL TRANSFER IN SYNCYTIAL STRUCTRES
PCT/US07/16429 (International)	COMPOSITIONS OF LATE PASSAGE MESENCHYMAL CELLS (MSCs)
PCT/US07/16430 (International)	USE OF LATE PASSAGE MESENCHYMAL STEM CELLS (MSCs) FOR TREATMENT OF CARDIAC DISORDERS
60/919,593 (U.S.)	QUANTUM DOT LABELED STEM CELLS FOR USE IN CARDIAC REPAIR
60/936,874 (U.S.)	QUANTUM DOT LABELED STEM CELLS FOR USE IN CARDIAC REPAIR
60/919,627 (U.S.)	QUANTUM DOT LABELED STEM CELLS FOR USE IN PROVIDING PACEMAKER FUNCTION
60/936,873 (U.S.)	QUANTUM DOT LABELED STEM CELLS FOR USE IN PROVIDING PACEMAKER FUNCTION
61/004,335 (U.S.)	FIBROPLASTS DERIVED STEM CELLS

## PUBLICATIONS

1. Cohen, I., Kita, H., & Van der Kloot, W.G., (1973). Miniature end-plate potentials evidence that the intervals are not fit by a Poisson distribution. *Brain Res.* 54, 318- 323.
2. Cohen, I., Kita, H., & Van der Kloot, W.G. (1974). The intervals between miniature end-plate potentials are unlikely to be independently or exponentially distributed. *J. Physiol.*, 236, 327-339.
3. Cohen, I., Kita, H., & Van der Kloot, W.G. (1974). The stochastic properties of spontaneous quantal release at the frog neuromuscular junction. *J. Physiol.* 236, 341-361.
4. Cohen, I., Kita, H., & Van der Kloot, W.G. (1974). Stochastic properties of spontaneous transmitter release at the crayfish neuromuscular junction. *J. Physiol.* 236, 363-371.
5. Van der Kloot, W.G., Kita, H., & Cohen, I. (1975). The timing of the appearance of min.e.p.p.s. *Progress in Neurobiology*, Vol. IV, Pt. IV, 269-326.
6. Cohen, I., Daut, J., & Noble, D. (1976). The influence of extracellular K<sup>+</sup> ions on the action of ouabain on membrane currents in sheep Purkinje fibres. *J. Physiol.* 260, 55-75.
7. Cohen, I., Daut, J., & Noble, D. (1976). The effects of ouabain on membrane currents in sheep Purkinje fibres. *J. Physiol.* 260, 75-105.
8. Cohen, I., Giles, W., & Noble, D. (1976). A cellular basis for the T wave. *Nature* 262, 657-661.
9. Cohen, I., & Van der Kloot, W.G. (1976). The effect of changing pH on spontaneous release at the frog neuromuscular junction. *J. Physiol.* 262, 401-414.
10. Cohen, I., and Strichartz, G. (1977). On the voltage dependent binding of TTX. *Biophys. J.* 17, 275-279.
11. Barton, S.B. and Cohen, I.S. (1977). Are Transmitter Release Statistics Meaningful? *Nature* 268, pp. 267-268.
12. Attwell, D., and Cohen, I. (1977). The Voltage Clamp of Multicellular Preparations. *Prog. in Biophys. and Mol. Biol.* 31, 201-245.
13. Noble, D. and Cohen, I.S. (1978). The Origin of the T Wave of the Electrocardiogram. *Cardiovascular Res.* XII #L, pp. 13-27.

14. Brown, R., Cohen, I., and Noble, D. (1978). The effects of  $\text{Ca}^{+2}$  and pH on membrane currents in sheep Purkinje fibres. *J. Physiol.* 282, 345-352.
15. Cohen, I., Eisner, D.A. and Noble, D. (1978). Effects of Adrenaline on the Pacemaker Potential in Cardiac Purkinje Fibres. *J. Physiol.* 280, 155-168.
16. Cohen, I.S. and Van der Kloot, W.G. (1978). On the Effects of  $\text{Ca}^{+2}$  and  $\text{Mg}^{+2}$  on miniature end-plate currents. *Nature* 271, 77-79.
17. Strichartz, G. and Cohen, I. (1978).  $V_{\max}$  as a Measure of  $G_{\text{Na}}$  in Nerve and Cardiac Membranes. *Biophys. J.* 23, 153-156.
18. Cohen, I., Noble, D., Ohba, M. and Ojeda, C. (1979). The use of sodium salicylate to counter glycoside toxicity. *J. Physiol.* 297, 187-207.
19. Cohen, I., Noble, D., Ohba, M. and Ojeda, C. (1979). The effects of sodium salicylate on sheep cardiac Purkinje fibres. *J. Physiol.* 297, 163-187.
20. Attwell, D., Cohen, I., Eisner, D., Ohba, M. and Ojeda, C. (1979). The steady state TTX-sensitive ("window") sodium current in cardiac Purkinje fibres. *Pflugers Archiv.* 379, 137-142.
21. Van der Kloot, W.G. and Cohen, I. (1979). Membrane Surface Potential Changes may alter Drug Interactions: An Example, Acetylcholine and Curare. *Science* 203, 1351-1353.
22. Cohen, I. (1979). Some difficulties in the experimental use of  $V_{\max}$  as a measure of  $g_{\text{Na}}$  in cardiac membranes. *Circ. Res.* 45, 309-312.
23. Attwell, D., Cohen, I. and Eisner, D. (1979). Membrane Potential Stability Conditions: Effects of a Restricted Extracellular Space. *Proc. Roy. Soc. B* 206, 145-162.
24. Attwell, D., Eisner, D. and Cohen, I. (1979). Voltage Clamp and Tracer Flux Data: Effects of a Restricted Extracellular Space. *Quart. Rev. of Biophys.* 12, 213-261.
25. Kline, R., Cohen, I., Falk, R. and Kupersmith, J. (1980). Activity Dependent Extracellular  $\text{K}^+$  Fluctuations in Canine Purkinje Fibers. *Nature* 286, 68-71.
26. Cohen, I., Falk, R. and Kline, R. (1981). Membrane Currents Following Activity in Canine Cardiac Purkinje Fibers. *Biophys. J.* 33, 281-288.
27. Attwell, D., Cohen, I. and Eisner, D. (1981). The effects of heart rate on the action potential of human and guinea pig ventricular muscle. *J. Physiol.* 313, 439-461.

28. Cohen, I., Van der Kloot, W.G. and Attwell, D. (1981). The timing of channel opening during spontaneous release at the frog neuromuscular junction. *Brain Res.* 223, 185-189.
29. Cohen, I., Attwell, D. and Strichartz, G. (1981). The dependence of the rate of rise of the action potential on membrane parameters. *Proc. Roy. Soc. B.* 214, 85-98.
30. Cohen, I., Van der Kloot, W.G., and Barton, S. (1981). Bursts of Miniature End-Plate Potentials can be released from localized regions of the frog motor nerve terminal. *Brain Res.* 221, 382-386.
31. Barton, S.B. and Cohen, I. (1982). Facilitation and Impulse Propagation Failure at the frog neuromuscular junction. *Pflugers Archiv.* 392, 327-334.
32. Cohen, I. and Van der Kloot, W.G. (1982). The Interaction of Extracellular  $H^+$ ,  $Na^+$ ,  $Ca^{2+}$ , and  $Sr^{2+}$  on the decay of miniature end-plate currents. *Brain Res.* 241, 285-291.
33. Cohen, I. and Kline, R. (1982).  $K^+$  fluctuations in the extracellular spaces of cardiac muscle: Evidence from the voltage clamp and  $K^+$  selective microelectrodes. *Circ. Res.* 50, 1-16.
34. Cohen, I., Falk, R. and Kline, R. (1982). Pacemaker activity in Purkinje fibers: A voltage clamp analysis. In Normal and Abnormal Conduction in the Heart, editors de Carvalho, Hoffman and Lieberman. Futura, pp. 287-312.
35. Cohen, I., Falk, R. and Mulrine, N. (1983). Actions of barium and rubidium on membrane currents in canine Purkinje fibers. *J. Physiol.* 338, 589-612.
36. Cohen, I., Falk, R. and Kline, R. (1983). Voltage Clamp studies on the canine Purkinje strand. *Proc. Roy. Soc. B.* 217, 215-236.
37. Eisenberg, B. and Cohen, I. (1983). The ultrastructure of the canine Purkinje strand: a morphometric analysis. *Proc. Roy. Soc. B.* 217, 191-213.
38. Barton, S.B., Cohen, I. and Van der Kloot, W.G. (1983). The calcium dependence of evoked quantal release at the frog neuromuscular junction. *J. Physiol.* 337, 735-751.
39. Cohen, I. and Van der Kloot, W.G. (1983). The effects of temperature and terminal membrane potential on quantal size at the frog neuromuscular junction. *J. Physiol.* 336, 335-344.
40. Cohen, I. (1983). Can blocking the Na/K exchange pump lead to a reduction in  $[Na^+]_i$ ? *Experientia* 39, 1280-1282.

41. Baldo, G., Cohen, I. and Van der Kloot, W.G. (1983). Facilitation and the nerve action potential at the frog neuromuscular junction. *Pflugers Archiv.* 399, 161-165.
42. Binah, O., Cohen, I.S. and Rosen, M.R. (1983). The Effects of Adriamycin on Normal and Ouabain-Toxic Canine Purkinje and Ventricular Muscle Fibers. *Circ. Res.* 53, 655-622.
43. Gintant, G., Datyner, N. and Cohen, I. (1984). Slow inactivation of a tetrodotoxin sensitive current in canine cardiac fibers. *Biophys. J.* 45, 509-512.
44. Falk, R. and Cohen, I. (1984). Membrane current following activity in canine cardiac Purkinje fibers. *J. Gen. Physiol.* 83, 771-799.
45. Van der Kloot, W.G. and Cohen, I. (1984). End-plate potentials in a model muscle fiber: corrections for the effects of membrane potential on currents and channel lifetimes. *Biophys. J.* 45, 905-912.
46. Van der Kloot, W. and Cohen, I. (1984). Temperature effects on spontaneous and evoked quantal size at the frog neuromuscular junction. *Journal of Neuroscience* 4, 2200-2203.
47. Kline, R.P. and Cohen, I. (1984). Extracellular  $[K^+]$  fluctuations in voltage-clamped canine cardiac Purkinje fibers. *Biophys. J.* 46, 663-668.
48. Cohen, I., Falk, R. and Gintant, G. (1984). Saturation of the internal sodium site of the sodium pump can distort estimates of potassium affinity. *Biophys. J.* 46, 719-727.
49. Cohen, I. and Van der Kloot, W.G. (1985). Calcium and transmitter release. *International Review of Neurobiology* 27, 299-336.
50. Gintant, G.A., Datyner, N.B. and Cohen, I.S. (1985). Gating of delayed outward rectifiers in acutely dissociated canine cardiac Purkinje myocytes: evidence for a single channel mechanism. *Biophys. J.* 48, 1059-1064.
51. Datyner, N.B., Gintant, G.A. and Cohen, I.S. (1985). Microprocessor controlled trituration devise for the dissociation of cardiac and other tissues. *Pflugers Archiv.* 403, 105-108.
52. Datyner, N.B., Gintant, G.A. and Cohen, I.S. (1985). Versatile temperature controlled tissue bath for studies of isolated cells using an inverted microscope. *Pflugers Archiv.* 403, 318-323.
53. Cohen, I., Datyner, N., Gintant, G., Mulrine, N. and Pennefather, P. (1985). A note on the relation of maximum upstroke velocity to peak inward current recorded by the voltage

clamp. Circ. Res. 57, 482-484.

54. Van der Kloot, W. and Cohen, I. (1985). Localizing the site of generation of uni-quantal end-plate potentials using two intracellular microelectrodes. Neuroscience Letters 62, 57-62.
55. Cohen, I. and Mulrine, N. (1986). Effects of Thallium on membrane currents at diastolic potentials in canine cardiac Purkinje strands. J. Physiol. 370, 285-298.
56. Baldo, G.J., Cohen, I.S. and Van der Kloot, W. (1986). Estimating the time course of evoked quantal release at the frog neuromuscular junction using end-plate current latencies. J. Physiol. 374, 503-513.
57. Cohen, I. and Van der Kloot, W. (1986). Facilitation and delayed release at single frog neuromuscular junctions. J. Neuroscience 6(8), 2366-2370.
58. Van der Kloot, W., Cohen, I.S. and Barton, S.B. (1986). Resting calcium levels and evoked release at the neuromuscular junction. In Calcium, Neuronal Function and Transmitter Release, editors B. Katz and R. Rahamimoff. Martinus Nijhoff Publishing, pp. 163-180.
59. Cohen, I., Datyner, N., Gintant, G. and Kline, R. (1986). Time dependent outward currents in the heart. In The Heart and Cardiovascular System: Scientific Foundations, editors H. Fozzard, E. Haber, R. Jennings, A. Katz and H. Morgan. Raven Press, pp. 637-669.
60. Cohen, I., Datyner, N.B., Gintant, G.A., Mulrine, N.K. and Pennefather, P. (1987). Properties of an electrogenic Na/K pump in isolated Canine Purkinje myocytes. J. Physiol. 383, 251-267.
61. Cohen, I.S., Kline, R.P., Pennefather, P. and Mulrine, N.K. (1987). Models of the Na/K pump in cardiac muscle predict the wrong intracellular Na<sup>+</sup> activity. Proc. Roy. Soc. B 231, 371-382.
62. Shah, A.K., Cohen, I.S. and Datyner, N.B. (1987). Background K<sup>+</sup> current in isolated canine cardiac Purkinje myocytes. Biophys. J. 52, 519-525.
63. Shah, A., Cohen, I.S. and Rosen, M.R. (1988). Stimulation of cardiac α-1 receptors increases Na/K pump activity via a pertussis toxin sensitive pathway. Biophys. J. 54, 219-225.
64. Gintant, G. and Cohen, I. (1988). Advances in cardiac cellular electrophysiology: Implications for automaticity and therapeutics. Ann. Rev. Pharmacol. Toxicol. 28, 61-81.

65. Oliva, C., Cohen, I.S. and Mathias, R.T. (1988). Calculation of time constants for intracellular diffusion in whole cell patch clamp configuration. *Biophys. J.* 54, 791-799.
66. Rosen, M.R., Robinson, R.B., Cohen, I.S. and Bilezikian, J.P. (1989). Developmental changes in alpha adrenergic modulation of cardiac rhythm. In Physiology and Pathophysiology of the Heart, editor N. Sperelakis. Martinus Nijhoff Publishing, 2nd edition, pp. 413-422.
67. Cohen, I.S., DiFrancesco, D., Mulrine, N.K. and Pennefather, P. (1989). Internal and external K<sup>+</sup> affect the gating of the inward rectifier in cardiac Purkinje myocytes. *Biophys. J.* 55, 197-202.
68. Cohen, I.S., Chang, F. and Kline, R.P. (1989). Repetitive Activity - Origin of the Na<sup>+</sup> load and its Physiologic Effects. In Lethal Arrhythmias Resulting from Myocardial Ischemia and Infarction, editors M. Rosen and Y. Palti. Kluver Academic Publishers, Boston, pp. 31-40.
69. Chang, F., Gao, J., Tromba, C., Cohen, I. and DiFrancesco, D. (1990). Acetylcholine reverses the effects of β agonists on i<sub>f</sub> in canine cardiac Purkinje fibers but has no direct action: A difference between primary and secondary pacemakers. *Circ. Res.* 66, 633-636.
70. Pennefather, P. and Cohen, I.S. (1990). Molecular mechanisms of cardiac potassium channel regulation. In Cardiac Electrophysiology and Arrhythmias from Cell to Bedside, editors D. Zipes and J. Jalife. W.B. Saunders and Co., pp. 17-26.
71. Rosen, M.R., Belezeckian, J.P., Cohen, I.S. and Robinson, R.B. (1990). Alpha-adrenergic modulation of cardiac rhythm. In Cardiac Electrophysiology and Arrhythmias from Cell to Bedside, editors D. Zipes and J. Jalife. W.B. Saunders and Co., pp. 300-304.
72. Cohen, I.S., Shah, A., Zaza, A., Kline, R. and Rosen, M.R. (1990). Ionic basis of the effects of alpha agonists on Purkinje myocytes. In Regulation of Potassium Transport Across Biological Membranes, editors L. Reuss, J. Russell and G. Szabo. University of Texas Press., pp. 429-441.
73. Kline, R.P., Zablow, L. and Cohen, I.S. (1990). Interaction of intracellular ion buffering with transmembrane coupled ion transport. *J. Gen. Physiol.* 95, 499-522.
74. Oliva, C., Cohen, I.S. and Pennefather, P. (1990). The mechanism of rectification of i<sub>K1</sub> in canine Purkinje myocytes. *J. Gen. Physiol.* 96, 299-318.

75. Tromba, C. and Cohen, I.S. (1990). A novel action of isoproterenol to inactivate a cardiac K<sup>+</sup> current is not blocked by Beta or Alpha adrenergic blockers. *Biophys. J.* 58, 791-795.
76. Mathias, R.T., Cohen, I.S. and Oliva, C. (1990). Limitations of the whole cell patch clamp technique in the control of intracellular concentrations. *Biophys. J.* 58, 759-770.
77. Cohen, I. and Datyner, N. (1990). Repolarizing membrane currents. In Cardiac Electrophysiology: A Textbook, editors M.R. Rosen, M.J. Janse and A.L. Wit. Futura Press, NY, pp. 107-115.
78. Gintant, G.A., Cohen, I.S., Datyner, N.B. and Kline, R.P. (1991). Time-dependent outward currents in the heart. In Handbook of Experimental Cardiology, 2nd Edition, editors H. Fozzard, E. Haber, R. Jennings, A. Katz and H. Morgan. Raven Press. 1121-1169.
79. Cohen, I.S. and Datyner, N.B. (1991). The multicellular cardiac voltage clamp: Approaches and problems. In Basic and Clinical Electrophysiology and Pharmacology of the Heart, editors Dangman and Miura, pp. 33-40.
80. DiFrancesco, D., Porciatti, F. and Cohen, I.S. (1991). The effects of manganese and barium on i<sub>f</sub> in rabbit sino-atrial node. *Experientia* 47, 449-452.
81. DiFrancesco, D., Porciatti, F., Janigro, D., Maccaferri, G., Mangoni, M., Tritella, T., Chang, F. and Cohen, I.S. (1991). Block of the cardiac pacemaker current (i<sub>f</sub>) in rabbit SA node and in canine Purkinje fibres by 9-amino-1,2,3,4-tetrahydroacridine (THA). *Pflugers Arch.* 417, 611-615.
82. Chang, F., Cohen, I.S., DiFrancesco, D., Rosen, M.R. and Tromba, C. (1991). The effects of the protein kinase inhibitors H7 and H8 on Purkinje fiber pacemaker depolarization and i<sub>f</sub>. *J. Physiol.* 440, 367-384.
83. Datyner, N.B. and Cohen, I.S. (1991). Modular cooling for tissue chambers and solutions: performance and design. *J. Neurosci. Meth.* 40, 49-62.
84. Chang, F. and Cohen, I.S. (1992). Mechanism of acetylcholine action on pacemaker current (i<sub>f</sub>) in canine Purkinje fibers. *Pflugers Archiv.* 420, 389-392.
85. Gao, J., Mathias, R.T., Cohen, I.S. and Baldo, G.J. (1992). Isoprenaline, Ca<sup>2+</sup>, and the Na<sup>+</sup>-K<sup>+</sup> pump in guinea-pig ventricular myocytes. *J. Physiol.* 449, 689-704.
86. Cui, J., Mandel, G., DiFrancesco, D., Kline, R.P., Pennefather, P., Datyner, N.B., Haspel, H.C. and Cohen, I.S. (1992). Expression and characterization of a canine

- hippocampal inwardly rectifying K<sup>+</sup> current in Xenopus oocytes. J. Physiol. 457, 229-246.
87. Yu, H., Chang, F. and Cohen, I.S. (1993). Pacemaker current exists in ventricular myocytes. Circ. Res. 72, 232-236.
88. Yu, H., Chang, F. and Cohen, I.S. (1993). Phosphatase inhibition by calyculin A increases i<sub>f</sub> in canine Purkinje fibers and myocytes. Pflugers Arch. 422, 614-616.
89. Datyner, N.B. and Cohen, I.S. (1993). Slow inactivation of L-type calcium current distorts the measurement of L and T-type calcium current in Purkinje myocytes. J. Gen. Physiol. 102, 859-869.
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